## WE CLAIM:

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- 1. A co-crystal comprising FimC, FimH and mannopyranoside in crystalline form.
- 2. The co-crystal of Claim 1 in which the FimC or FimH is a mutant.
  - 3. The co-crystal of Claim 2 in which the mutant is a conservative mutant.
  - 4. The co-crystal of Claim 2 in which the FimH is FimH Q13 N
  - 5. The co-crystal of Claim 2 in which the FimH comprises amino acids 1 to 158 of SEQ ID NO:4.
    - 6. The co-crystal of Claim 1, which is diffraction quality.
    - 7. The co-crystal of Claim 1, which is a native crystal.
    - 8. The co-crystal of Claim 1, which is a heavy-atom derivative crystal.
- 9. The co-crystal of Claim 1, which is characterized by a unit cell of a=138.077  $\pm 0.2$ Å, b=138.130  $\pm 0.2$ Å, c= 215.352  $\pm 0.2$ Å, α=90, β=90.005, and γ=90.
  - 10. The co-crystal of Claim 1, which is produced by a method comprising the steps of:
    - (a) mixing a volume of a solution comprising FimC, FimH and mannopyranoside with a volume of a reservoir solution comprising a precipitant; and
    - (b) incubating the mixture obtained in step (a) over the reservoir solution in a closed container, under conditions suitable for crystallization until the crystal forms.
  - 11. The co-crystal of Claim 10, wherein the precipitant is present in a concentration between 0.6 M and 1.2 M.
    - 12. The co-crystal of Claim 10 wherein the precipitant is ammonium sulfate.

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- 13. The co-crystal of Claim 10, wherein the solution further comprises between 50 mM and 100 mM Tris HCl.
- 14. The co-crystal of Claim 10, wherein the solution comprises between 0.5 mM and 30 mM mannopyranoside.
  - 15. The co-crystal of Claim 10, wherein the solution has a pH of between 7.8 and 8.6.
    - 16. A method of making the crystal of Claim 1, comprising:
      - (a) mixing a volume of a solution comprising the FimC, FimH and mannopyranoside with a volume of a reservoir solution comprising a precipitant; and
      - (b) incubating the mixture obtained in step (a) over the reservoir solution in a closed container, under conditions suitable for crystallization until the crystal forms.
  - 17. The method of Claim 16, wherein the precipitant is present n a concentration between 0.6 M and 1.2 M.
    - 18. The method of Claim 16, wherein the precipitant is ammonium sulfate.
  - 19. The method of Claim 16, wherein the solution further comprises between 50 mM and 100 mM Tris HCl.
- 20. The method of Claim 16, wherein the solution comprises between 0.5 mM and 30 mM mannopyranoside.
  - 21. The method of Claim 16, wherein the solution has a pH of between 7.8 and 8.6.
- 22. A machine-readable medium embedded with information that corresponds to a three-dimensional structural representation of a co-crystal comprising FimC, FimH, or a fragment or portion thereof, and a mannose sugar in crystalline form.
- The machine readable medium of Claim 22, in which the crystal is diffraction quality.

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- 24. The machine readable medium of Claim 22, in which the crystal is a native crystal.
- 5 25. The machine readable medium of Claim 22, in which the crystal is a heavy-atom derivative crystal.
  - 26. The machine readable medium of Claim 22, in which the FimC or FimH is a mutant.
  - 27. The machine readable medium of Claim 26, in which the mutant is a selenomethionine or selenocysteine mutant.
  - 28. The machine readable medium of Claim 27, in which the mutant is a conservative mutant.
  - 29. A machine-readable medium embedded with the atomic structure coordinates of Figure 2, or a subset thereof.
  - 30. A method of identifying a FimC or FimH binding compound, comprising the step of using a three-dimensional structural representation of complex comprising FimC, FimH and mannopyranoside, or a fragment thereof, to computationally screen a candidate compound for an ability to bind FimC or FimH.
- 31. A method of identifying a FimC or FimH binding compound, comprising the step of using a three-dimensional structural representation of complex comprising FimC, FimH and mannopyranoside, or a fragment thereof, to computationally design a synthesizable candidate compound that binds FimC or FimH.
- 32. A machine-readable medium embedded with the atomic structure of Table 14 or Table 16, or a subset thereof.
  - 33. A co-crystal comprising FimC, FimH, and a saccharide.

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